

Space Weather Forecast

Issued on Tuesday, 05 March 2024 at 13:26 Local

This forecast provides a four day assessment of space weather events. The probabilities stated below are for reaching or exceeding the given levels. For more information about space weather impacts please see the Met Office Space Weather Scales <https://www.metoffice.gov.uk/weather/learn-about/space-weather/uk-scales>

Space Weather Forecast Headline: Chance of isolated Moderate flares throughout. Slight chance of G1/Minor Storm conditions on 07 and 08 March.

Analysis of Space Weather Activity over past 24 hours

Solar Activity: Low, with only Common class flaring, the largest of these from two small regions close to the southwest limb. There are 11 sunspot regions on the visible disc, with the largest region close to the northwest limb, although this region is decreasing in complexity. The remaining regions are either weak or stable. No Earth-directed Coronal Mass Ejections (CMEs) were observed.

Solar Wind / Geomagnetic Activity: Solar wind speeds have been at slightly elevated speeds following a CME arrival on 03 March. Total magnetic field strength has weakened from moderate to weak levels, with the north-south component of the magnetic field only varying weakly. Resultant geomagnetic activity was Quiet to Unsettled.

Energetic Particles / Solar Radiation: The count rate of energetic particles (high energy protons) remained at background levels with no radiation storms observed.

Four-Day Space Weather Forecast Summary

Solar Activity: Low with a chance of Moderate activity, mainly due to the region in the far western hemisphere.

Solar Wind / Geomagnetic Activity: A CME which left the Sun on 03 March may glance the Earth on 07 March, with low confidence. A fast solar wind is also forecast to connect with the Earth, either on 07 March, but more likely on 08 March, with slightly elevated speeds. Geomagnetic activity is expected to be Quiet to Unsettled through 05 and 06 March. This may then reach Unsettled to Active levels through 07 and 08 March, with a slight chance of G1/Minor Storms from either the CME or fast solar wind connection.

Energetic Particles / Solar Radiation: The count rate of energetic particles (high energy protons) is expected to persist at background levels, but with a very slight chance of rising above the S1/Minor Radiation Storm threshold should any significant flares occur from the numerous sunspots that occupy the western disc.

Geomagnetic Storms:

Geo-Magnetic Storm	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC)	Day 2 (00-24 UTC)	Day 3 (00-24 UTC)	Day 4 (00-24 UTC)
Probability (Exceedance)			(%)	(%)	(%)	(%)
Minor or Moderate	G1 to G2	No	1	1	10	20
Strong	G3	No	1	1	1	1
Severe	G4	No	1	1	1	1
Extreme	G5	No	1	1	1	1

Radio Blackouts - X Ray Flares:

X Ray Flares	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC)	Day 2 (00-24 UTC)	Day 3 (00-24 UTC)	Day 4 (00-24 UTC)
Probability			(%)	(%)	(%)	(%)
Active	R1-R2 M Class	No	30	30	30	30
Very Active	R3 to R5 X	No	1	1	1	1

Solar Radiation Storms - (High Energy Protons):

Radiation Storms	Level (cm ⁻² sr ⁻¹ s ⁻¹)	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC)	Day 2 (00-24 UTC)	Day 3 (00-24 UTC)	Day 4 (00-24 UTC)
Probability (Exceedance)			(%)	(%)	(%)	(%)
Active	≥ S1	No	5	5	5	5
Very Active	≥ S3 *	No	1	1	1	1

* S3 ≥ 10 MeV ≥ 1000 pfu and / or ≥ 50 MeV ≥ 10 pfu. (pfu = cm⁻²sr⁻¹s⁻¹)